Claims

1. A method of hermetically packaging an electronic device (8), in an enclosure (2) comprising mutually inter-engageable first and second housing members (4, 6), comprising the steps of

(i) securing the electronic device (8) to the first housing member (4),

(ii) engaging the first and second housing members (4, 6) such that an hermetic seal is provided there between,

wherein the engagement step is performed in a controlled atmosphere.

2. A method according to claim 1 wherein the first housing member (4) comprises a base portion (10), to which the electronic device (8) is secured during the securing step, and an engagement portion adapted to engage with the second housing member (6), and wherein the method further comprises the step of attaching the base portion (10) to the engagement portion prior to engaging the first and second housing members (4, 6).

3. A method according to claim 1 or 2 wherein the first and second housing members (4, 6) are adapted to inter-engage to form an interference fit there between, said interference fit providing the hermetic seal.

4. A method according to claim 1 or 2 wherein the enclosure further comprises sealing means (16) interposed between the first and second housing members (4, 6), said sealing means providing the hermetic seal.

5. A method according to claim 4 wherein the sealing means (16) comprise at least one of a metal, a eutectic alloy, an elastomer and an adhesive.

6. A method according to claim 5 wherein the sealing means (16) comprise an indium seal.

7. A method according to claim 5 wherein the sealing means (16) comprise a compressible elastomeric ring.

8. A method according to any of claims 4 - 7 and further comprising the intermediate step of applying the sealing means (16) to least one of the first and second housing members (4, 6) prior to engaging the first and second housing members (4, 6).

9. A method according to any of claims 4 - 8 wherein the enclosure (2) further comprises spacer means (18) disposed adjacent the sealing means (16) so as to preclude over-compression of the sealing means (16) during the engagement step.

10. A method according to any of claims 4 - 9 wherein the enclosure (2) comprises retaining means disposed adjacent the sealing means (16) so as to retain the sealing means (16).

11. A method according to any of the preceding claims wherein the second housing member (6) comprises a first substantially transmissive optical element (20) and an engagement portion adapted to engage with the first housing member (4).

12. A method according to claim 11 when dependent on any of claims 4-10 wherein the hermetic seal is provided between the first housing member (4) and the first optical element (20) via the sealing means (16).

13. A method according to claim 11 or 12 wherein the second housing member (6) is adapted to receive a second substantially transmissive optical element (22).

14. A method according to any of the preceding claims wherein the controlled atmosphere comprises an inert gas.

15. A method according to claim 14 wherein the inert gas comprises at least one of nitrogen and argon.

16. A method according to any of the preceding claims wherein the controlled atmosphere comprises a vacuum.

17. A method according to any of the preceding claims wherein the step of engaging the first and second housing members (4, 6) includes the step of bonding said housing members.

18. A method according to claim 17 wherein the bonding step comprises one of friction welding and friction soldering.

19. A method according to any of the preceding claims wherein the first and second housing members (4, 6) comprise metal cylinders having a substantially circular cross section.

20. A method of hermetically packaging an electronic device (8) substantially as herein before described with reference to figures 1-4 of the accompanying drawings.

21. An electronic device comprising an electronic element (8), a first housing member (4), and a second housing member (6), the first and second housing members (4, 6) having an engagement hermetic seal there between so as to define around the electronic element (8) an hermetic enclosure (2) having a controlled atmosphere within.

22. An electronic device comprising an electronic element (8), a first housing member (4), and a second housing member (6), the first and second housing members (4, 6) defining an hermetic enclosure (2),

wherein the electronic element (8) is located within the hermetic enclosure (2) and wherein the hermetic enclosure (2) is formed by engaging the first and second housing members (4, 6) in a controlled atmosphere such that an engagement hermetic seal is provided there between.

23. An electronic device according to claim 21 or 22 wherein the engagement hermetic seal comprises an interference seal between the first and second housing members (4, 6).

24. An electronic device according to claim 21 or 22 wherein the engagement hermetic seal comprises a friction weld between the first and second housing members (4, 6).

25. An electronic device according to claim 21 or 22 and further comprising sealing means (16) interposed between the first and second housing members (4, 6), said sealing means (16) providing the engagement hermetic seal.

26. An electronic device according to claim 25 wherein the first and second housing members (4, 6) are held in engagement by an interference fit there between.

27. An electronic device according to claim 25 or 26 wherein the sealing means (16) comprise at least one of a metal, a eutectic alloy, an elastomer and an adhesive.

28. An electronic device according to claim 27 wherein the sealing means (16) comprise an indium seal.

29. An electronic device according to claim 27 wherein the sealing means (16) comprise a compressible elastomeric ring.

30. An electronic device according to any of claims 25 – 29 wherein the enclosure (2) further comprises spacer means (18) disposed adjacent the sealing means (16) so as to preclude over-compression of the sealing means (16).

31. An electronic device according to any of claims 25 - 30 wherein the enclosure (2) comprises retaining means disposed adjacent the sealing means (16) so as to retain the sealing means (16).

32. An electronic device according to any of claims 21 - 31 wherein the second housing member (6) comprises a first substantially transmissive optical element

(20) and an engagement portion adapted to engage with the first housing member (4).

33. An electronic device according to claim 32 wherein the first optical element (20) comprises a lens.

34. An electronic device according to claim 32 or 33 wherein the first optical element (20) comprises at least one of chalcogenide glass, silicon and germanium.

35. An electronic device according to any of claims 32 – 34 when dependent on any of claims 25 - 31 wherein the engagement hermetic seal is provided between the first housing member (4) and the first optical element (20) via the sealing means (16).

36. An electronic device according to any of claims 32 – 35 wherein the second housing member (6) includes a second substantially transmissive optical element (22).

37. An electronic device according to claim 36 wherein the second optical element (22) comprises chalcogenide glass.

38. An electronic device according to any of claims 21 - 37 wherein the controlled atmosphere comprises an inert gas.

39. An electronic device according to claim 38 wherein the inert gas comprises at least one of nitrogen and argon.

40. An electronic device according to any of claims 21 - 39 wherein the controlled atmosphere comprises a vacuum.

41. A thermal detector (8) housed within an hermetic enclosure (2) comprising mutually inter-engaged first and second housing members (4, 6), the second housing member (6) comprising a first substantially transmissive optical element (20); wherein said housing members enclose the thermal detector (8) within a

controlled atmosphere and provide an hermetic seal around said thermal detector (8).

42. A thermal detector according to claim 41 wherein the first and second housing members (4, 6) form an interference fit there between, said interference fit providing the hermetic seal.

43. A thermal detector according to claim 41 wherein the enclosure (2) further comprises sealing means (16) interposed between the first and second housing members (4, 6), said sealing means (16) providing the hermetic seal.

44. A thermal detector according to claim 43 wherein the sealing means (16) comprise at least one of a metal, a eutectic alloy, an elastomer and an adhesive.

45. A thermal detector according to claim 44 wherein the sealing means (16) comprise an indium seal.

46. A thermal detector according to claim 44 wherein the sealing means (16) comprise a compressible elastomeric ring.

47. A thermal detector according to any of claims 41 - 46 wherein the first optical element (20) comprises a lens.

48. A thermal detector according to any of claims 41 - 47 wherein the first optical element (20) comprises at least one of chalcogenide glass, silicon and germanium.

49. A thermal detector according to any of claims 43 -48 wherein the hermetic seal is provided between the first housing member (4) and the first optical element (20) via the sealing means (16).

50. A thermal detector according to any of claims 43 - 49 wherein the second housing member (6) includes a second substantially transmissive optical element (22).

51. A thermal detector according to claim 50 wherein the second optical element (22) comprises chalcogenide glass.

52. A thermal detector according to any of claims 41 - 51 wherein the controlled atmosphere comprises an inert gas.

53. A thermal detector according to claim 52 wherein the inert gas comprises at least one of nitrogen and argon.

54. A thermal detector according to any of claims 41 - 53 wherein the controlled atmosphere comprises a vacuum.

55. A thermal detector substantially as herein before described with reference to figures 1-4 of the accompanying drawings.